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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,465	03/21/2001	John Paquette	05923-012001	4116

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HALE AND DORR, LLP
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
SAADAT, CAMERON	
ART UNIT	**PAPER NUMBER**
3713	14

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/814,465	PAQUETTE ET AL.	
	Examiner	Art Unit	
	Cameron Saadat	3713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-9,11-22,24-27,30-34,36-47,49-52,55-59,61-72 and 74-77* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-9,11-22,24-27,30-34,36-47,49-52,55-59,61-72 and 74-77* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. 13.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

In response to amendment filed 2/11/04, claims 1,2,5-9,11-22,24-27,30-34,36-47,49-52,55-59,61-72 and 74-77 are pending in this application. Claims 3-4, 10, 23, 28-29, 35, 48, 53-54, 60, and 73 are cancelled.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 26, and 51 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claimed feature of "comparing a contribution of one instrumental part.." is not consistent with specification which describes comparing "the contribution of an *input function*".

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 26, and 51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The meaning of the term "cost of switching" is not understood.

Claims 2, 5-9, 11-12, 76-77, 27, 30-34, 36-37, 52, 55-59, and 61-62 are rejected for incorporating the above errors from their respective parent claims by dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 5-9, 12, 26-27, 30-34, 37, 51-52, 55-59, and 62 are rejected under 35 U.S.C. 102(e) as being anticipated by Yourlo (U.S. Patent No. 6,201,176).

Regarding claims 1, 26, and 51, Yourlo discloses a computer-implemented method and apparatus for generating a musical part from an electronic music file 100 comprised of pitched instrumental parts, the method comprising: generating a control stream that indicates which of the instrumental parts has a highest value for each of a plurality of periods of time; wherein generating the control stream involves for each of the plurality of periods of time, comparing a contribution of one instrumental part for that period of time to a contribution of another instrumental part for the period of time (column 7, lines 6-9). Yourlo does not explicitly disclose that generating the control stream is based on a *cost of switching*. However, as best understood, applicant's intended meaning of "cost of switching" is directed toward determining which instrumental part is more desirable. Thus, Yourlo does in fact disclose a (cost of switching) feature-comparison step wherein a control stream is generated based on how desirable one instrumental part is in comparison to another instrumental part (Col. 5, lines 1-10; Fig. 3). Yourlo further discloses the step of selecting one of the instrumental parts for the

period of time based on the control stream; and outputting the selected instrumental part for each of the plurality of periods of time to produce the musical part (column 9, lines 42-50).

Regarding claims 2, 27, and 52, Yourlo discloses a method and apparatus wherein generating the control stream involves determining for each of said plurality of periods of time which of the instrumental parts has a highest value for that period of time and examining other periods of time defined by the electronic music file (Fig. 5, ref. 516).

Regarding claims 5, 30, and 55, Yourlo discloses a method and apparatus wherein generating the control stream comprises: obtaining measurement streams which include values for corresponding instrumental parts; and identifying an instrumental part in the measurement streams that has the highest value for the period of time (column 7, lines 9-29).

Regarding claims 6, 31, and 56, Yourlo discloses a method and apparatus wherein obtaining the measurement streams includes analyzing aspects of the musical part (column 7, lines 19-20).

Regarding claims 7, 32, and 57, Yourlo discloses a method and apparatus wherein the aspects include one or more of strum speed, average pitch, polyphony, loudness, and a vocal part (column 11, lines 35-50).

Regarding claims 8, 33, and 58, Yourlo discloses a method and apparatus wherein: generating the control stream further comprises merging the measurement streams to obtain a composite measurement stream; and the instrumental part in the measurement streams that has the highest value for the period of time is identified using the composite measurement stream (see Fig. 5, refs. 506, 618).

Regarding claims 9, 34, and 59, Yourlo discloses a method and apparatus, wherein the electronic music file comprises a Musical Instrument Digital Interface (MIDI) file (column 9, line 67).

Regarding claims 12, 37, and 62, Yourlo discloses a method and apparatus wherein generating is performed using a chooser object and selecting and outputting are performed using a switcher object (see Fig. 15, refs. 1504, 1506, 314).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 11, 36, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yourlo (U.S. Patent No. 6,201,176) in view of Kikuchi (U.S. Patent No. 6,143,973).

Aoki discloses a method and apparatus comprising instrumental parts. It is not specifically disclosed that instrumental parts comprise a stream of events. However, Kikuchi discloses a method comprising instrumental parts further comprising a stream of events; each event in the stream of events having a time stamp; and the method further comprises changing time stamps of events that are within a predetermined time period of each other so that the time stamps are the same (column 8, lines 44-50; Fig. 6). At the time of the invention, it would have

been obvious to a person of ordinary skill in the art to modify the instrumental parts described by Yourlo, by providing time stamps that change when events occur within a predetermined time period, in light of the teachings of Kikuchi, thereby allowing synchronization of the instrumental parts.

Claims 76-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yourlo (U.S. Patent No. 6,201,176)

Yourlo discloses a method of generating a control stream that indicates which of the instrumental parts has a highest value for each of a plurality of periods of time throughout the duration of a musical piece. It is not explicitly stated that the periods of time occur at the measures of a musical piece. However, it would have been an obvious matter of design choice as to the sampling points wherein no stated problem is solved or unexpected result is obtained by prescribing sampling points at each measure.

Claims 13-20, 24-25, 38-45, 49-50, 63-70, and 74-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (U.S. Patent No. 6,294,720) in view of Kay (USPN 6,121,533).

Regarding claims 13, 38, and 63, Aoki discloses a computer-implemented method and apparatus for generating a musical part from an electronic music file, comprising: for each of a plurality of periods of time, identifying a plurality of patterns in the electronic music file; and selectively combining the patterns to produce the musical part (see Fig. 6, refs. 110, 112, 114,116,118; Fig. 2). Aoki discloses all of the claimed subject with the exception of explicitly disclosing that patterns having relatively low frequencies are combined to produce the musical part before patterns having relatively high frequencies are combined. However, Kay teaches a computer-implemented method of generating a musical part from a stored musical file, wherein patterns having relatively low frequencies are combined to produce the musical part before

patterns having relatively high frequencies are combined (Col. 18, line 63 – Col. 19, line 14). Hence, in view of Kay, it would have been obvious to an artisan to modify the method of identifying and selecting patterns as described in Aoki, by combining low frequency patterns before high frequency patterns in order to provide another pattern grouping condition (See Aoki, Col. 19, lines 29-32) and thereby extracting and combining patterns and pitches which show similarity and/or contrast one another (See Aoki, Col. 22, lines 3-39).

Regarding claims 14, 39, and 64, Aoki discloses a method and apparatus wherein the patterns comprise individual instrumental tracks in the electronic music file (column 21, lines 58-62).

Regarding claims 15, 40, and 65, Aoki discloses a method and apparatus wherein selectively combining comprises: selecting one of the patterns; determining if a rhythmic complexity of the selected pattern exceeds a predetermined threshold; and adding the selected pattern to the musical part if the rhythmic complexity of the selected pattern does not exceed the predetermined threshold (column 16, lines 8- 13; Figs. 5a and 5b).

Regarding claims 16, 41, and 66, Aoki discloses a method and apparatus further comprising discarding the selected pattern if the rhythmic complexity of the selected pattern exceeds the predetermined threshold (column 16, lines 39-41).

Regarding claims 17, 42, and 67, Aoki discloses a method and apparatus wherein the rhythmic complexity of the selected pattern is determined based on musical features of the selected pattern (column 5, lines 37-46).

Regarding claims 18, 43, and 68, Aoki discloses a method and apparatus wherein the musical features comprise one or more of a beat of the selected pattern, syncopated notes in the selected pattern, and proximity of notes in the selected pattern to other notes in the selected pattern (column 5, lines 37-46).

Regarding claims 19, 44, and 69, Aoki discloses a method and apparatus wherein selectively combining comprises: selecting one of the patterns; determining if the selected pattern is similar to a pattern already in the musical part; and adding the selected pattern to the musical part if the selected pattern is not similar to a pattern already in the musical part (Fig. 6, refs, 112, 116).

Regarding claims 20, 45, and 70, Aoki discloses a method and apparatus further comprising discarding the selected pattern if the selected pattern is similar to a pattern already in the musical part (column 16, lines 39-41).

Regarding claims 24, 49, and 74, Aoki discloses a method and apparatus wherein the electronic music file comprises a Musical Instrument Digital Interface (MIDI) file (column 10, line 27).

Regarding claims 25, 50, and 75, Aoki discloses a method and apparatus wherein the electronic music file is comprised of events; and the method further comprises removing all but pre-specified events from the electronic music file prior to performing, identifying, and selectively combining (column 21, lines 28-43).

Claims 22, 47, and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (U.S. Patent No. 6,294,720) in view of Kay (USPN 6,121,533).

Aoki discloses a method and apparatus wherein the similarity of patterns is determined. It is not explicitly disclosed that quantization is used to determine the similarity. However, it is the Applicant's own admission that quantization is a common practice employed in comparing two patterns.

Claims 21, 46, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (U.S. Patent No. 6,294,720) in view of Kay (USPN 6,121,533), further in view of Miller et al. (U.S. Patent No. 5,925,843).

The combination of Aoki and Kay discloses a method and apparatus wherein the similarity of patterns is determined. It is not explicitly disclosed that fuzzy comparison is used to determine the similarity. However, Miller et al. disclose a method wherein the similarity of musical patterns is determined by fuzzy comparison (column 9, lines 3-5). It would have been obvious to a person of ordinary skill in the art to modify the pattern comparison method described in Aoki and Kay, by providing fuzzy comparison, in light of the teachings of Miller et al., in order to provide a more accurate comparison. Furthermore, it is the examiner's position that using fuzzy comparison is old and well known for controlling processes that involve constantly changing variables.

Response to Arguments

In response to amendment filed on 2/11/04, Finality is withdrawn. The extended prosecution of this application is respectfully regretted.

The indicated allowability of claims 23, 48, and 73 is withdrawn in view of the newly discovered reference(s) to Kay (USPN 6,121,533). The indicated allowability of claims 4, 29, 54 is hereby withdrawn in view of Yourlo does not explicitly disclose that generating the control stream is based on a *cost of switching*. However, as best understood, applicant's intended meaning of "cost of switching" is directed toward determining which instrumental part is more desirable. Thus, Yourlo does in fact disclose a (cost of switching) feature-comparison step wherein a control stream is generated based on how desirable one instrumental part is in comparison to another instrumental part (Col. 5, lines 1-10; Fig. 3).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Paroutaud (USPN 5,142, 961) – discloses a method of extracting pitch and frequency data from a musical performance to create a new performance.
- Tabata (USPN 5,355,762) – discloses a computer music playing system wherein quantizing data is utilized.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cameron Saadat whose telephone number is 703-305-5490. The examiner can normally be reached on M-F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teresa J Walberg can be reached on 703-308-1327. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

CS

T. Walberg

Teresa Walberg
Supervisory Patent Examiner
Group 3700